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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/784,341
Filing Date: February 23, 2004
Appellant(s): BECK ET AL.

Terry D. Morgan
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed June 08, 2009 appealing from the Office action mailed Dec. 02, 2008.

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(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

There was no amendment to the claims after final.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence(s) Relied Upon

US Pat. 6,010,139	Heyring et al.	01-2000
20030001734	Schofield et al.,	01-2003
US Pat. 6,267,196	Wilcox et al.	07-2001
US Pat. 4,313,511	Soo Hoo	02-1982
US Pat. 4,342,278	Horan; John J.	08-1982

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims (note that rejections of claims 7-8 on 35 USC 103 (a) in the Office Action mailed on 12/02/2008 are withdrawn).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

A. Claims 1-4, 9-10, and 14-18 are rejected under 35 U.S.C. § 102(b) as being anticipate by Heyring et al. (US Pat. 6,010,139).

a. As to claims 1-2: Heyring et al. teach a method of controlling stability of a vehicle having an articulated suspension, comprising:

- determining a dynamic property of the vehicle (this "dynamic property" is inherent in Heyring et al.'s vehicle); and

- manipulating the articulated suspension based on that dynamic property (e.g., in this particular case that dynamic property is vehicle's rear wheel impact caused by a hump) to affect the stability of the vehicle (i.e., "*…the pitch motion of the vehicle is further reduces the input to the rear axle*", see Heyring et al., col. 14, lines 59-64).

b. As to claim 3: Heyring et al., teach that manipulating the articulated suspension to affect a center of gravity of the vehicle (see Heyring et al., col. 2 lines 58-62).

c. As to claim 4: Heyring et al., disclose that manipulating the articulated suspension to affect stability limits of the vehicle (see Heyring et al., col. 14, lines 59-64, and col. 1 lines 13-17).

d. As to claim 9: Heyring et al., disclose "*As shown in FIG. 1, the ram is functionally related to the front left wheel while*

ram 2 is similarly associated with the front right wheel. Ram 3 is associated with the rear right hand side wheel while ram 4 is located between the rear left wheel and the chassis. The front of the vehicle is therefore represented towards the top of the page." (see Heyring et al., col. 5, line 65 to col. 6 line 3).

Heyring et al., already take into consideration when manipulating the articulated suspension of a wheel suspension with respect to a chassis of the vehicle; wherein a placement of these structures contributed to that claimed relation.

e. As to claims 10, and 14: Claim 10 requires a step of actively damping the articulated suspension.

Claim 14 requires steps of:

determining a damping scenario (i.e., determining a rear wheels impact a hump); and

adjusting damping levels (i.e., by retracting rear rams 3-4).

Heyring et al. teach these claimed limitations (i.e., "*…the pitch motion of the vehicle is further reduces the input to the rear axle*", see Heyring et al., col. 14, lines 59-64).

The applicants admits that "…damping is a part of articulation …" (see the Appeal Brief filed on 12/17/2007, page 15, lines 12-13); that means any articulation already/inherently includes this claimed damping characteristic; therefore, Heyring

et al., teach about a step of manipulating the articulated suspension comprises actively damping the articulated suspension (note that a limitation for claim 14 is "determining a damping scenario, and adjusting damping levels of active dampers) - this is an inherently characteristic of claimed articulation because "manipulating" then "sending command signals" can be interpreted as "actively determining", and "actively adjusting" damping features.

f. As to claims 14-15, and 17: Heyring et al., also inherently teach a method of controlling stability of a vehicle having an articulated suspension, comprising:

- determining a damping scenario; and

- adjusting damping levels of active dampers of the articulated suspension.

See the below analysis:

Heyring et al. also teach about using articulated suspension, comprising:

- determining a damping scenario (see Heyring et al., col. 7 lines 30-36:"… can occur depending on wheel base length, distance between bumps, speed, damping rates, spring rates and physical location of the rams with regard to the wheel geometry, for example." - *from these descriptions, at least, vehicle's speed is considered as a damping scenario by Heyring et al.,*

col. 7 lines 32-35), and adjusting damping levels of active dampers by a load equalization unit 13 (see Heyring et al col. 8 lines 20-26, "… fluid communication with chambers 14 and 17 within the opposed cylinder portions of the load equalisation unit 13. If an obstacle (such as a speed hump) is encountered by both front wheels simultaneously, fluid will become expelled out of the upper chambers 1a and 2a.*"*

g. As to claim 16: Heyring et al. teach a method of controlling stability of a vehicle having an articulated suspension, comprising:

- determining the damping scenario (i.e., on a rough surface/based on a road condition/based on a travel terrain), (see Heyring et al. disclose (col. 10 lines 15-40) *"The damper unit should be regarded as an important optional component as it permits the tuning of specific functions in the suspension system. The damper also can be used to delay the responses and interactions between the front and back axle so that inputs at sensitive frequencies resulting from wheel base length road conditions do not upset vehicles smooth passage. Dampers may also take the form of (optionally variable) restrictors 9b, 9c, 12b, 12c, 11b, 11c, 10b, 10c within the conduits, which permit the individual tuning of the various components. For example, when the restrictor-dampers 9b, 10b,*

11b, 12b are introduced, fluid is restricted from communicating with the lower chambers 1b, 2b, 3b, 4b so that the resilient effects of the load distribution unit 13 are maximised. Conversely, when the dampers 9c, 10c, 11c, 12c are mainly used this prevents the free communication of fluid from the rams to the load distribution unit and encourages fluid to act upon the lower ram chambers 1b, 2b, 3b, 4b with very different consequences. Adjusting the balance of the restrictions exerted by restrictors 9b, 10b, 11b, 12b with reference to restrictors 9c, 10c, 11c, 12c provides the ability to allow for the appropriate tuning of the total damping forces acting on the vehicle. Such tuning can also be accomplished through the careful selection of conduit sizes to provide the appropriate amount of friction to arrive at similar damping responses.".

Therefore, Heyring et al. teach a method to manipulating the articulated suspension as claimed.

h. As to claims 17-18: Heyring et al., also inherently practice a step of sensing a dynamic response of the vehicle (i.e., sensing a speed hump - (i.e., "*…the pitch motion of the vehicle is further reduces the input to the rear axle*", see Heyring et al., col. 14, lines 59-64), and analyzing the sensed dynamic response (i.e., using a vehicle's pitch levels to adjust a damping level).

Therefore, Heyring et al. teach a method of controlling stability of a vehicle, and observing/sensing/detecting a dynamic response.

Claim 18 requires a limitation of:

- sensing a dynamic response of a damping action (for this requirement, Heyring et al., suggest that "*The damper also can be used to delay the responses and interactions between the front and back axle*" (e.g., based on a wheel's position) - see Heyring et al., col. 10 lines 15-40.

Claim Rejections - 35 USC § 103

B. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heyring et al. (US Pat. 6,010,139), in view of Schofield et al., (US Pub. No. 2003/0001734 A1).

Heyring et al. teach a method to manipulating the articulated suspension as claimed.

Heyring et al. do not disclose about using GPS data to affect that manipulating articulated suspension.

However, Schofield et al. teach that feature (see Schofield et al., para. [0116]) providing "attitude and a location of the vehicle" information by a GPS for a certain use, as claimed.

Note that claiming "location of the vehicle" is different from para. [0101] of the disclosure (i.e., a relative distance from a vehicle to a target - this claimed language (i.e., claim

5) is unclear because these 2 locations are different in meanings).

Thus, practitioner in the art at the time of the invention would have found it is obvious to combine the use of a GPS to obtain data, as disclosed by Schofield et al. with Heyring et al., because GPS remotely provides an accurate object's attitude and location that would remotely pinpoint a particular location that effect a vehicle's stability.

C. Claims 6, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heyring et al. (US Pat. 6,010,139), in view of Wilcox et al. (US Pat. 6,267,196).

Heyring et al. teach a method to manipulating the articulated suspension.

Heyring et al. do not disclose about manipulating an articulated suspension based upon a sprung, and an unsprung mass.

However, Wilcox et al., suggest about using those sprung mass, and unsprung weight/mass in stability calculation - adjusting a vehicle's center of gravity (these weights clearly effect a vehicle's mass) (see Wilcox et al., col. 2 lines 10-30).

Thus, practitioner in the art at the time of this invention was made would have found it obvious to combine the feature as

disclosed by Wilcox et al. with Heyring et al. because it is a goal to minimize the unsprung weight/mass: e.g., that which is not carried by the suspension - a reduction of the sprung mass will generally have a tendency to lower the vehicle's center of gravity, and thereby increase its stability. It is therefore advantageous that the relatively heavy drive motors be included in the unsprung mass of the vehicle.

D. Claims 9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heyring et al. (US Pat. 6,010,139), in view of Soo Hoo (US Pat. 4,313,511).

The rationale(s) and reference for rejection of claim 1 are incorporated.

A claimed step is required for these claims: "articulating wheel assemblies with respect to a chassis of the vehicle (to substantially level loads on the plurality of wheel assemblies)", in this method claim "to substantially level loads on the plurality of wheel assemblies" is an obvious result of the previous claimed clause "articulating wheel assemblies with respect to a chassis of the vehicle".

Soo Hoo also discloses in col. 3 lines 13-26: "*In order to form a triple track support for the vehicle 10, a right side wheel assembly 23 is mounted on the frame 14 spaced slightly to the front of the rear wheel assembly and spaced rightwardly*

outwardly from the longitudinal central axis of the frame 14. The assembly 23 has a right side wheel 24 supported by means of a right side articulated swinging-link swept-back suspension 25. Similarly, a left side wheel assembly 26 is mounted on the chassis and extends leftwardly outwardly therefrom opposite the right side wheel assembly 23. The left side wheel assembly 26 has a left side wheel 27, and journaled for rotation thereon and being supported from the frame 14 by means of a left side articulated swinging-link swept-back suspension 28.".

From Soo Hoo's above disclosure, the examiner submits that this claim's teaching is obvious to one with ordinary skill in the art because Soo Hoo already suggests to transfer a balance to wheel assemblies with respect to a vehicle's chassis for leveling a change in load.

E. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heyring et al. (US Pat. 6,010,139), in view of Horan (US Pat. 4,243,278).

Heyring et al. do not disclose these claimed features.

However, Horan suggests about having an apparatus taking into account a mast, and a turret that could effect to a stability of an articulated device.

The examiner submits that it is obvious for articulating components mounting on a vehicle (e.g., a turret - a rotation

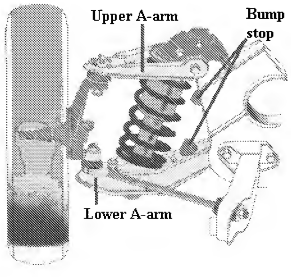
structure for observation or holding weapons), and a mast of the vehicle (e.g., any sturdy upright pole) with respect to a chassis of the vehicle.

It would have been obvious with one having ordinary skill in the art to implement Heyring et al. with suggestions from Horan about having an apparatus taking into account a mast, and a turret that could effect to a stability of an articulated device because both of them are creating successful articulated devices with a mast, and Horan adds a rotating object that still keep his device stable.

Conclusion

F. Elected claims 1-6, and 9-19 are not patentable. Claims 7-8, 19 are objected because they are dependent on rejected claim 1.

Remark: a car's suspension example



Bump stop/Jounce bumper: A cushioning device, usually rubber, that limits the upward movement of the wheels and Suspension to prevent metal-to-metal contact that could lead to Suspension damage or failure.

(10) Response to Argument

The examiner respectfully maintains his position although applicants argue about distinguish features in the specification since applicants' broad claims read-on cited references (as shown above) - the examiner further points out column and lines that read-on claimed concept.

The examiner submits that applicants MUST read that cited reference of Heyring et al., AS A WHOLE to see a whole picture of what is already taught because the reference speaks for itself. The examiner submits that Heyring et al.'s reference anticipate what applicants claimed (in another word, the applicants claims a concept that Heyring et al.'s reference already taught).

Claims that are anticipated by prior art reference are also obvious in view of that reference under 35 USC 103 (In re Baxter Travenol Labs, 21 USPQ 2nd 205); and anticipatory reference need not duplicate, word for word, what is in claims; anticipation can occur when claimed limitation is "inherent" or otherwise

implicit in relevant reference (Standard Havens Products Incorporated v. Gencor Industries Inc., 21 USPQ2d 1321).

Argument 1: Claims 1-4, 9-10, 14-15, and 17-18 are not anticipated by Heyring.

As clearly indication as above column and lines in Heyring's reference, these claims are not patentable under 35 U.S.C. § 102(b). Again, claims 1 and 14 are extremely broad that read-on Heyring's concept.

For example, as to generic claim 1: Heyring et al., teach a method of controlling stability of a vehicle having an articulated suspension, comprising two steps:

- determining a dynamic property of the vehicle (i.e., regarding a pitch motion/a damping issue); and
- manipulating the articulated suspension based on that dynamic property (e.g., in this case that dynamic property is vehicle's rear wheel impact caused by a hump) to affect the stability/damping of the vehicle (i.e., "*…the pitch motion of the vehicle is further reduces the input to the rear axle*", see Heyring et al., col. 14, lines 59-64).

Argument 2: Claims 5-9, 11-13, 15-16, and 19 are not obvious over the cited art.

- Claim 5 is not obvious over Heyring in combination Schofield.

The examiner submits that dependent claim 5 is obvious over Heyring, in combination of Schofield et al. (its limitation is: determining a vehicle's location; then depending on that location to adjust that vehicle's suspension/damping level(s)) - using a GPS has been widely known for a vehicle's location, that info., also being used to set a damping level, accordingly).

- Claims 6 and 15 is not obvious over Heyring in combination Wilcox.

The examiner submits that dependent claims 6, 15 are obvious over Heyring, in combination of Wilcox, as shown above with rationales.

- Claims 7-9, 13, 16 and 19 are not obvious over Heyring in combination with Soo Hoo.

The examiner submits that dependent claims 9, 13, 16 and 19 are obvious over Heyring, in combination of Soo Hoo, as shown above with rationales (claims 7-8 are objected for dependencies).

- Claims 11-12 are not obvious over Heyring in combination with Horan.

The examiner submits that dependent claims 11-12 are obvious over Heyring, in combination of Horan, as shown above with rationales.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/CUONG H. NGUYEN/

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